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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/572,555	05/03/2007	Menachem Nathan	27/277	5080

7590
Mark M Friedman
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9003 Florin Way
Upper Marlboro, MD 20772

01/07/2008

EXAMINER

WONG, TINA MEI SENG

ART UNIT	PAPER NUMBER
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2874

MAIL DATE	DELIVERY MODE
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01/07/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/572,555

Applicant(s)

NATHAN, MENACHEM

Examiner

Tina M. Wong

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 51-70 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 51-70 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 March 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 8/2/06 & 9/1/06.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted by the International Bureau under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

The drawings are objected to because:

The drawings filed with this application on 17 March 2006 are objected to as being informal. Notice that Figures are hand drawn and the labels on the figures are handwritten. Furthermore, the shading of some of the Figures are pale.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 51, 52, 56-59, 68 and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication 2003/0193720 to Beach et al.

In regards to claim 51, Beach et al teaches a reflecting micro-optical component comprising a microlens (10) operative to couple light through total internal reflection [0033] of the light inside the microlens. Although Beach et al does teach the microlens to be operative to couple light, Beach et al does not specifically teach the coupling to be between first (48) and second micro-optical components. However, Beach et al clearly suggests the output collimated light to be coupled to another micro-optical component. Therefore, although not explicitly stated, Beach does suggest the microlens to be operative to couple light between two micro-optical components.

In regards to claim 52, Beach et al teaches the microlens including a curved envelope section (42, [0033]) and at least two non-parallel envelope sections, and wherein the light enters the microlens through one flat section (40), exits the microlens through a different section (44) and is reflected internally at the curved envelope section. Although Beach et al does not specifically teach both envelope sections to be flat, Beach et al does teach the different section

(44) to be a focal line (not shown). By the term "line" the section being flat would be implied and therefore, Beach et al does teach a different flat section.

In regards to claims 56 and 57, Beach et al teaches a thin reflecting layer covering the curved envelope section. Although Beach et al does not specifically teach the reflecting layer to be metal, the use of metal in optical devices for the purpose of reflection is a commonly applied technique/material used in the art. Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have used metal as the reflecting layer.

In regards to claims 58 and 59, Beach et al teaches at least one of the micro-elements to be a light source. Furthermore, Beach et al teaches the component to be used in the laser diode packaging technology. Additionally, the laser diode packaging technology typically includes optical waveguides and photodetector outputs. Therefore, one of ordinary skill would have likely used a waveguide or photodetector as input/output micro-optical components.

In regards to claim 68, Beach et al teaches a method of coupling light between first and second micro-optical components comprising the steps of forming a microlens reflector operative to reflect light from the first to the second micro-optical component by total internal reflection and coupling light from the first to the second micro-optical component. Although Beach et al does teach the microlens to be operative to couple light, Beach et al does not specifically teach the coupling to be between first (48) and second micro-optical components. However, Beach et al clearly suggests the output collimated light to be coupled to another micro-

optical component. Therefore, although not explicitly stated, Beach does suggest the microlens to be operative to couple light between two micro-optical components.

In regards to claim 70, Beach et al teaches forming a microlens further including forming a thin reflecting layer over the curved external surface.

Claims 53-55 and 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication 2003/0193720 to Beach et al as applied to claims 51 and 68 above, and in further view of U.S. Patent 5,080,706 to Snyder et al.

Beach et al teaches all discussed above but fails to specifically teach the microlens to include a material transparent to light, such as a photoresist or glass. However, Beach et al discloses that the Snyder et al reference uses an appropriate method for forming microlenses. So therefore, Snyder et al teaches the microlenses to be drawn from photosensitive glass, which is a light transparent material. Therefore, since Beach et al is silent on the details of the lens and provides the Snyder et al reference as an appropriate method of forming the microlens, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have used the photosensitive glass taught by Snyder et al to form the microlens as claimed.

Claims 60-67 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication 2003/0193720 to Beach et al in view of U.S. Patent 5,080,706 to Snyder et al.

In regards to claims 60 and 61, a reflecting microlens comprising a curved envelope section (42) separating a light transparent material from a first external medium, a first flat envelope section (40) separating the material from a second external medium and a second envelope section positioned substantially vertical to the first flat section and separating the light

transparent material from a third external medium whereby light entering the microlens from the second external medium is totally internally reflected from the curved envelope section into the third external medium. But Beach et al fails to specifically teach the microlens to include a material transparent to light, such as a photoresist or glass. However, Beach et al discloses that the Snyder et al reference uses an appropriate method for forming microlenses. So therefore, Snyder et al teaches the microlenses to be drawn from photosensitive glass, which is a light transparent material. Therefore, since Beach et al is silent on the details of the lens and provides the Snyder et al reference as an appropriate method of forming the microlens, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have used the photosensitive glass taught by Snyder et al to form the microlens as claimed. Further, Beach et al fails to specifically the second envelope section to be flat, Beach et al does teach the second section (44) to be a focal line (not shown). By the term "line" the section being flat would be implied and therefore, Beach et al does teach a different flat section.

In regards to claims 62 and 63, Beach et al teaches a thin reflecting layer covering the curved envelope section. Although Beach et al does not specifically teach the reflecting layer to be metal, the use of metal in optical devices for the purpose of reflection is a commonly applied technique/material used in the art. Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have used metal as the reflecting layer.

In regards to claims 64-66, Beach et al teaches at least one of the micro-elements to be a light source. Furthermore, Beach et al teaches the component to be used in the laser diode

packaging technology. Additionally, the laser diode packaging technology typically includes optical waveguides and photodetector outputs. Therefore, one of ordinary skill would have likely used a waveguide or photodetector as input/output micro-optical components.

In regards to claim 67, Beach et al teaches a silicon substrate.

Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The documents submitted by applicant in the Information Disclosure Statement have been considered and made of record. Note attached copy of form PTO-1449.

Conclusion

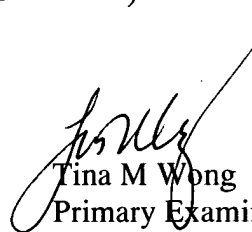
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tina M. Wong whose telephone number is (571) 272-2352. The examiner can normally be reached on Monday-Friday 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Art Unit: 2874

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Tina M Wong
Primary Examiner
Art Unit 2874